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| 10/694,323 | 10/27/2003 | Pankaj Mehra | 200309900-1 | 3837 |

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| EXAMINER | |
|---|---|
| FEARER, MARK D | |
| **ART UNIT** | **PAPER NUMBER** |
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**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

| Office Action Summary | Application No. | Applicant(s) | |
|---|---|---|---|
| | 10/694,323 | MEHRA, PANKAJ | |
| | Examiner | Art Unit | |
| | Mark D. Fearer | 2143 | |

*-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --*

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

1)☒ Responsive to communication(s) filed on *27 October 2003*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

4)☒ Claim(s) *1-17* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-17* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

**Application Papers**

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *27 October 2003* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

## DETAILED ACTION

- Applicant's Amendment filed 13 September 2007 is acknowledged.
- Claims 1, 4, 7, and 10-15 have been amended.
- Claims 1-17 are pending in the present application.
- This action is made FINAL.

### *Claim Rejections - 35 USC § 103*

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

The factual inquiries set forth in Graham v. John Deere Co., 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

Claims 13 and 15-17 is rejected under 35 U.S.C. 103(a) as being unpatentable over Sawada et al. (US 6907470 B2) in view of Ball et al. (US 20030046390 A1).

Consider claim 13. Sawada et al. discloses a method performed by a switch contained in a system, comprising: the switch detecting a link down event associated with said switch, said link down event indicative of a link from the switch to an entity becoming non-functional; receiving a packet into said switch (("In accordance with the present invention, a packet communications apparatus is provided that is used in a network system wherein user terminals that can be linked via a network to the apparatus send/receive packets to/from a server ...") column 1 lines 65-67 and column 2 lines 1-2); the switch determining if said packet is to be routed out through a port associated with the detected link down event; and if the switch determines that the packet is to be routed out through a port associated with a detected link down event, the switch discarding the packet (("A further feature of the present invention is that each network interface includes a link down detector and the packet communications apparatus can change the state of the network interface to disconnected state when the link down detect detects link-down.") column 3 lines 8-12). However, Sawada et al. fails to disclose a switch monitoring for a link up event, said switch allowing routed network traffic if link is determined to be up. Ball et al. discloses a method for constructing multi-layer topological models of computer networks wherein OSPF link state protocol automatically configures topology and link state are propagated to update routing tables (("The Internet Protocol (IP) divides networks into autonomous systems (AS) with

routing areas and area subnets. The area sub-nets form adjacencies and flooding of link state information. The OSPF link state protocol provides for dynamically auto-configurating the AS topology and for forwarding data frames received from adjacent nodes. The link states are propagated depending on the location and designation of the routers which maintain routing tables and forward data frames. The protocol defines four types of routers, that is, an internal, border, backbone and boundary router. The border, backbone and boundary routers advertise summary route information and internal routers advertise complete link state information within an area. An optimal routing policy such as SPF can be used for routing within an AS. Each router node therefore maintains a topology database, a routing table and a forwarding capability. A Type of Service (TOS) field in the IP packets may be used to create routes based on QOS requirements such as delay, throughput and reliability. All OSPF protocol exchanges are authenticated.") paragraph 0026).

Therefore, it would have been obvious for a person of ordinary skill in the art at the time the invention was made to incorporate a method for constructing multi-layer topological models of computer networks wherein OSPF link state protocol automatically configures topology and link state are propagated to update routing tables as taught by Ball et al. with a method performed by a switch contained in a system, comprising: the switch detecting a link down event associated with said switch, said link down event indicative of a link from the switch to an entity becoming non-functional; receiving a packet into said switch, the switch determining if said packet is to be routed out through a port associated with the detected link down event; and if the switch

determines that the packet is to be routed out through a port associated with a detected link down event, the switch discarding the packet as taught by Sawada et al. for the purpose of a spanning tree.

Consider claim 14, and as applied to claim 13 above. Sawada et al., as modified by Ball et al., discloses a method including if a switch determines that a packet is to be routed out through a port associated with a detected link down event (("... includes a link down detector and the packet communications apparatus can change the state of the network interface to disconnected state when the link down detect detects link-down.") Sawada et al., column 3 lines 9-12), discarding all packets received by the switch (("... change filtering that updates the contents of the filtering table by a directive from the external, and to the filtering tables whose contents are initially set to discard all received packets, ...") Sawada et al., column 3 lines 34-38).

It would have been obvious to a person of ordinary skill in the art at the time the invention was made to incorporate discarding all packets received by a switch as taught by Sawada et al. with a switch determines that a packet is to be routed out through a port associated with a detected link down event as taught by Sawada et al. for the purpose of blocking all communications associated with a downed link.

Consider claim 15, and as applied to claim 13 above. Sawada et al., as modified by Ball et al., discloses a method including detecting a link up event associated with a switch indicative of a newly established link from the switch to an entity and requesting the entity to provide a unique identifier to the switch (("... a learned address table

containing information for identifying a network interface through which to send a packet, a packet forwarding unit that selects a port through which to forward a packet by referring to the learned address table, according to the state of the network interfaces, and forwards or discards a packet sent from the user terminal, addressed to the server for authentication/file server and vice versa, a processor for directive packets to change state that receives a directive packet to change state, holding a directive to change the state of a specific network interface to one of the connected state, ...") Sawada et al., column 2 lines 4-14).

Consider claims 16 and 17, and as applied to claim 15 above. Sawada et al., as modified by Ball et al., discloses a method wherein a switch receiving a unique identifier from the entity, comparing the unique identifier received from the entity to state information contained in the switch and, if the unique identifier from the entity does not match a value in the state information, discarding a packet destined for the entity, or, if the unique identifier from the entity matches a value in the state information, permitting packets destined for the entity to be routed from the switch to the entity (("A packet communications apparatus of the present invention essentially comprises a plurality of network interfaces (NIFs), a learned address table, a packet forwarding unit (PFU) and a processor for directive packets to change state (PDPCS). The learned address table contains information for identifying a NIF through which to send a packet. The PFU selects a port through which to forward a packet by referring to the learned address table, according to the state of the NIFs, and forwards or discards a packet received from a user terminal. The PDPCS receives a packet including a directive to change the

state of a specific NIF to one of the connected state, disconnected state and stateless. The PDPCS changes the state of the specific NIF to one of the connected state, disconnected state and stateless, according to the directive in the packet.") abstract).

Claims 1, 3, 7, 9-10 and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Shabtay et al. (US 20040047336 A1) in view of Ball et al. (US 20030046390 A1).

Consider claims 1, 7 and 10. Shabtay et al. discloses a switch (("Stackable switches are bridging devices which are formed internally by a plurality of bridging devices, connected by internal links.") paragraph 0007), comprising: a plurality of ports and end nodes (("Local communication networks generally comprise a plurality of bridging devices and communication links. Each communication link connects between two or more bridging devices or between one or more bridging devices and one or more end-stations, e.g., computers. Each bridging device comprises a plurality of ports which serve as interfaces between the bridging device and the links to which it is connected.") paragraph 0003); a plurality of link up/down detection logic units, each link up/down detection logic unit is associated with a port and detects a change in the state of a link associated with the port (("One or more links of the cluster are pre-designated as redundant links which are activated in case other links of the network fail. Preferably, each redundant link is associated with one or more links, the failure of which (in combination and/or alternatively) induce the activation of the redundant link. Preferably, the predetermined links are not necessarily connected to a common bridging device with all the associated links. Preferably, when a link fails, a bridging device adjacent the

failed link notifies a bridging device which is adjacent the redundant link associated with the failed link. The notified bridging device then activates the redundant link.") paragraph 0011). However, Shabtay et al. fails to disclose a configuration validation checker coupled to each of the link up/down detection logic units, said configuration validation checker causes the switch to change its routing behavior with regard to a port for which a link up/down detection unit has detected a state change. Ball et al. discloses a method for constructing multi-layer topological models of computer networks wherein VLANs perform a broadcast to detect the state of switch segments (read as validation checkers) and update routed network traffic accordingly (("A virtual LAN (VLAN) is a logical Layer 2 broadcast domain, which enables a logical segmentation of the network without changing the physical connections. A VLAN enabled switch segments the connected stations into logically defined groups. Broadcast traffic from a server or an end-stations in a particular VLAN is replicated only on those ports connected to end-stations belonging to that VLAN. The broadcast traffic is blocked from ports with no end-points belonging to that VLAN, creating a similar type of broadcast containment that routers provide. VLANs may also be defined between different domains connected by a router. In this case, the router passes network traffic from one domain to the other (as done without defining a VLAN), and passes network traffic from one VLAN to the other. The router also passes network traffic between VLANs that are in the same domain because VLANs do not normally share user information. The router is configured as a member of all VLANs.") paragraph 0020).

Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to incorporate a method for constructing multi-layer topological models of computer networks wherein VLANs perform a broadcast to detect the state of switch segments and update routed network traffic accordingly as taught by Ball et al. with a switch, comprising: a plurality of ports; a plurality of link up/down detection logic units, each link up/down detection logic unit is associated with a port and detects a change in the state of a link associated with the port as taught by Shabtay et al. for the purpose of using smart bridges to manage network topology changes.

Consider claims 3, 9 and 12, and as applied to claims 1, 7 and 10, respectively. Shabtay et al., as modified by Ball et al., discloses a switch wherein a link up/down detection logic unit informs a configuration validation checker when a link to an associated port becomes non-functional, and the configuration validation checker responds by discarding all packets destined to that link (("Preferably, the managing bridging-device is connected to the redundant link through a predetermined port. Further preferably, only the managing bridging-device is permitted to change the status of an operative link from active to blocked.") Shabtay et al., paragraph 0029).

Claims 2, 4-6, 8, and 11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Shabtay et al. (US 20040047336 A1) in view of Ball et al. (US 20030046390 A1) and in further view of Kao et al. (US 7054951 B1).

Consider claims 2, 8 and 11, and as applied to claims 1, 7 and 10, respectively. Shabtay et al., as modified by Ball et al., discloses a switch wherein a link up/down

detection logic unit informs a configuration validation checker when a link to an associated port becomes non-functional. However, Shabtay et al., as modified by Ball et al., fails to disclose a validation checker discarding packets. Kao et al. discloses plug and play node addition in a dual ring topology network using locally significant ring identifiers for determining routing decisions wherein packets are discarded if an address does not match an identifier (("If the query packet received is from another node, then the query packet must be evaluated. More specifically, the MAC address associated with the query packet is compared to the node's MAC address. In an implementation where the node with the smallest MAC address sets the ring identifier for the network, if the MAC address is smaller than the node's MAC address then the node transitions to the client sniffer state 364. The transition includes forwarding the query packet to a next node. If the MAC address is larger, then the query packet is discarded and the node remains in the active sniffer state. In an implementation where the node with the largest MAC address sets the ring identifier, then the transitions are reversed appropriately.") column 12 lines 27-39).

Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to incorporate plug and play node addition in a dual ring topology network using locally significant ring identifiers for determining routing decisions wherein packets are discarded if an address does not match an identifier as taught by Kao et al. with a switch wherein a link up/down detection logic unit informs a configuration validation checker when a link to an associated port becomes non-

functional as taught by Shabtay et al., as modified by Ball et al., for the purpose of transport intermediaries effectively routing communications.

Consider claim 4, and as applied to claim 1 above. Shabtay et al., as modified by Ball et al., discloses a switch wherein a link up/down detection logic unit informs a configuration validation checker when a non-functional link to an associated port becomes functional. However, Shabtay et al., as modified by Ball et al., fails to disclose a configuration validation checker responding to a non-functional link notification by: receiving an identifier value from an entity coupled to the switch via the functional link; comparing the identifier value received from the entity with topology information contained in the switch; and if the identifier value matches a value in the topology information, permitting the switch to route packets over the functional link; or if the identifier value does not match a value in the topology information, discarding all packets targeting the functional link. Kao et al. discloses plug and play node addition in a dual ring topology network using locally significant ring identifiers for determining routing decisions wherein a check is made to determine if the topology packet was generated by the receiving node and, if so, then the topology information is evaluated and stored/updated in the topology table and, if not, then a check is made to determine if the ring identifier associated with the topology discovery packet matches the ring identifier associated with the ring on which the packet was received (("When a topology discovery packet is received (376), a check is made to determine if the topology packet was generated by the receiving node (378). If so, then the topology information is evaluated (380) and stored/updated in the topology table as appropriate (382). More

specifically, entries in the topology table can be added or entries updated based on the received topology information. If the topology packet was not generated by the receiving node, then a check is made to determine if the ring identifier for the node has local significance only (384). If not, then a check is made to determine if the ring identifier associated with the topology discovery packet matches the ring identifier associated with the ring on which the packet was received (386). If no match arises, then the packet is forwarded without appending any information relating to the receiving node to the topology discovery packet (388) and thereafter the process can continue at step 376. If the ring identifier matches, then the address for the receiving node is appended to the topology packet, and as appropriate, the ring identifier associated with the ring on which the packet was received is appended to the topology packet as well (390). Thereafter, the packet is forwarded at step 388.") column 13 lines 51-67 and column 14 lines 1-5) and packets are discarded if an address does not match an identifier (column 12 lines 27-39).

Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to incorporate plug and play node addition in a dual ring topology network using locally significant ring identifiers for determining routing decisions wherein a check is made to determine if the topology packet was generated by the receiving node and, if so, then the topology information is evaluated and stored/updated in the topology table and, if not, then a check is made to determine if the ring identifier associated with the topology discovery packet matches the ring identifier associated with the ring on which the packet was received and packets are discarded if

an address does not match an identifier as taught by Kao et al. with a switch wherein a link up/down detection logic unit informs a configuration validation checker when a non-functional link to an associated port becomes functional as taught by Shabtay et al., as modified by Ball et al., for the purpose of effectively routing packets.

Consider claim 5, and as applied to claim 1 above. Shabtay et al., as modified by Ball et al., discloses a switch wherein a configuration validation checker receives topology information. However, Shabtay et al., as modified by Ball et al., fails to disclose a configuration validation checker receiving topology information from an entity external to the switch and comparing the received topology information to topology information contained in the switch. Kao et al. discloses plug and play node addition in a dual ring topology network using locally significant ring identifiers for determining routing decisions wherein a check is made to determine if the topology packet was generated by the receiving node and, if so, then the topology information is evaluated and stored/updated in the topology table and, if not, then a check is made to determine if the ring identifier associated with the topology discovery packet matches the ring identifier associated with the ring on which the packet was received (column 13 lines 51-67 and column 14 lines 1-5) and packets are discarded if an address does not match an identifier (column 12 lines 27-39).

Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to incorporate plug and play node addition in a dual ring topology network using locally significant ring identifiers for determining routing

decisions wherein a check is made to determine if the topology packet was generated by the receiving node and, if so, then the topology information is evaluated and stored/updated in the topology table and, if not, then a check is made to determine if the ring identifier associated with the topology discovery packet matches the ring identifier associated with the ring on which the packet was received and packets are discarded if an address does not match an identifier as taught by Kao et al. with a switch wherein a configuration validation checker receives topology information as taught by Shabtay et al., as modified by Ball et al., for the purpose of annotating a switch topology file.

Consider claim 6, and as applied to claim 5 above. Shabtay et al., as modified by Ball et al., discloses a switch wherein a configuration validation checker receives topology information. However, Shabtay et al., as modified by Ball et al., fails to disclose a switch wherein if topology information contained in the switch does not match topology information received from an external entity, preventing the newly received topology information from being used by the switch. Kao et al. discloses plug and play node addition in a dual ring topology network using locally significant ring identifiers for determining routing decisions wherein a check is made to determine if the topology packet was generated by the receiving node and, if so, then the topology information is evaluated and stored/updated in the topology table and, if not, then a check is made to determine if the ring identifier associated with the topology discovery packet matches the ring identifier associated with the ring on which the packet was received (column 13 lines 51-67 and column 14 lines 1-5) and packets are discarded if an address does not match an identifier (column 12 lines 27-39).

Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to incorporate plug and play node addition in a dual ring topology network using locally significant ring identifiers for determining routing decisions wherein a check is made to determine if the topology packet was generated by the receiving node and, if so, then the topology information is evaluated and stored/updated in the topology table and, if not, then a check is made to determine if the ring identifier associated with the topology discovery packet matches the ring identifier associated with the ring on which the packet was received and packets are discarded if an address does not match an identifier as taught by Kao et al. with a switch wherein a configuration validation checker receives topology information as taught by Shabtay et al., as modified by Ball et al., for the purpose of predicting communication performance.

### *Response to Arguments*

Applicant's arguments filed 13 September 2007 with respect to claims 1-17 have been considered but are moot in view of the new ground(s) of rejection.

### *Conclusion*

**THIS ACTION IS MADE FINAL**. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any response to this Office Action should be faxed to (571) 273-8300 or mailed to:

Commissioner for Patents
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Hand-delivered responses should be brought to

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Randolph Building
401 Dulany Street
Alexandria, VA 22314

Any inquiry concerning this communication or earlier communications from the Examiner should be directed to Mark Fearer whose telephone number is (571) 270-1770. The Examiner can normally be reached on Monday-Thursday from 7:30am to 5:00pm.

If attempts to reach the Examiner by telephone are unsuccessful, the Examiner's supervisor, David Wiley can be reached on (571) 272-3923. The fax phone number for the organization where this application or proceeding is assigned is (571) 273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free) or 571-272-4100.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist/customer service whose telephone number is (571) 272-2600.

Mark Fearer
M.D.F./mdf
November 23, 2007

DAVID WILEY
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